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ABSTRACT

Utilizing data derived from 277 rural, male respondents initially enrolled in Lenawee County, Michigan high schools, the Rotter's Internal-External Locus of Control Scale was employed to test the hypothesis that locus of control will have interactive rather than additive effects on the process of status attainment. Locus of control was defined as a variable describing one's belief or doubt regarding his ability to control the events in his life. Internals were defined as persons who perceive their own efforts as instrumental in attaining their goals; externals were defined as those who consider their lives to be determined by external conditions, chance, or luck. Locus of control was measured only in the second of the two data-waves taken 15 years apart (1957 and 1972). Variables compared for internals and externals were status outcomes, intergenerational mobility, independence, enactment of aspirations, learning efficiency, intragenerational (in-career) mobility, and overall predictability (indeterminancy). Results indicated the following: no statistically significant differences between internals and externals regarding their means for educational, occupational, and income attainments; significant differences in the attainment processes of the two groups, as expressed by standardized regression coefficients in status attainment models; less mobility among externals in their early careers; a greater degree of influence on the attainments of internals by educational aspirations and attainments. (JC)

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LOCUS OF CONTROL AND STATUS ATTAINMENT*

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ABSTRACT

This paper presents a test of the hypothesis that locus of control (LC: a variable describing one's belief or doubt regarding his ability to control the events in his life) will have interactive rather than additive effects on the process of status attainment (SA). Data taken in two waves, 15 years apart, were used for the test. It was performed by comparing the way a well-known social psychological conception of status attainment operates within each of two subsamples of men, one high on LC ("internals") and the other low ("externals"). No statistically significant differences are found between internals and externals regarding their means for educational, occupational and income attainments. However, the attainment processes of the two groups, as expressed by standardized regression coefficients in status attainment models, differ significantly. Externals experience less mobility within their early careers. This is considered to result from their decreased sense of mastery. The attainments of internals tend to be affected to a greater degree by educational aspirations and attainments, presumably due to the greater efficiency of their learning process. Although the evidence is mixed, on the whole it would appear that the LC-SA interaction hypothesis is probably tenable. Implications for status attainment research and for social psychology are indicated.

Locus of Control and Status Attainment

Efforts to advance scientific understanding of status attainment processes through the inclusion of social-psychological variables (Sewell, Haller and Portes, 1969; Sewell, Haller and Ohlendorf, 1970; Sewell and Hauser, 1975; Otto and Haller, 1978) began almost immediately after the basic model by Blau and Duncan (1967) was published. From this and other work (Alexander, Eckland, and Griffin, 1975) it seems clear that intelligence, youth's status aspirations and the status expectations their significant others hold for them have substantial effects on their later attainments, the important reservations of Wilson and Portes (1975) notwithstanding. To date no other psychological variables have survived careful tests of their hypothesized contributions to the attainment of status (see Duncan, Featherman and Duncan, 1972; Featherman, 1972; Spenner and Featherman, 1978). Yet we do not believe that the issue is closed. The sterile results of the attempts made thus far to determine the effects of other aspects of personality on status attainment may be due to the combination of poorly chosen personality variables and an unproductive view of their relationship to behavior.

The position forwarded in the present study is that the methodology employed, along with the specific personality variables investigated, have a decisive effect on the conclusions drawn with regard to the importance of psychological factors in attainment processes. Taking a methodological cue from Lewin (1935, 1951) we look for an interactive effect of per-

sonality on the status attainment process. Indeed the evidence supporting his hypothesis of interactive effects of the person and the situation on behavior is quite impressive. Endler and Magnuson (1976), for example, report that they have reviewed the results of a number of studies in which appropriate n-way analysis of variance designs have been employed on data regarding persons, situations and behaviors. They note that the outcomes of such designs generally support the interaction hypothesis.

The personality construct explored here, which expected to exert interactive rather than linear effects on attainment, is Rotter's Internal-External Control, or locus of control (Rotter, 1966; Phares, 1976; Lefcourt, 1976). It is defined as "the degree to which a person perceives that reward follows from or is contingent upon, the person's own behavior, versus the degree to which the reward is perceived as controlled by forces outside of himself and may occur independently of his own action" (Rotter, 1966). Although control expectancies theoretically form a continuum, most investigators divide their sample into "internals" and "externals". Internals perceive their own efforts as instrumental in attaining their goals, while externals consider their lives to be determined by external conditions, chance or luck.

In the present paper we present evidence testing the hypothesis that locus of control (LC) affects, in predictable ways, the operation of the status attainment (SA) process. In principle this is an interactive conception, holding that while there is no reason to expect status outcomes to be influenced by LC, certain specifiable aspects of the process by which these statuses are attained should be different for internals than for externals. We refer to this as the "LC-SA interaction hypothesis".

Ideally in research on this problem, cohort members' locus of control would be measured early, along with other known antecedent variables, before they had become differentiated with respect to education, occupation, and income. The LC variable would also be measured at one or more later periods. This would permit a direct assessment of the long term consistency of the variable, and would make more secure whatever conclusions are drawn about its effects, joint with other variables, on status outcomes. As will be seen, not all of this strategy could be employed here. This is because locus of control was measured only in the second of two data-waves taken 15 years apart, [redacted] So we have adopted a modification of the strategy which takes the LC problem into account. Locus of control differences among our cohort are plainly evident at the time of the second data-wave (t_2). We cannot provide direct evidence as to whether they existed 15 years earlier at the time of the first (t_1), or if they did, whether the sample members were similarly ranked both times. But with available data it is still possible to employ the t_2 measurement alone to adduce evidence sufficient to negate the hypothesis. Such evidence would be provided if certain theoretically anticipated differences between sub-samples of internals and externals, as determined by t_2 LC measures, regarding specified coefficients of regression and determination, could not be detected within an appropriate test sample for whom a commonly accepted conception of status attainment is already known to work. Evidence based solely on this sort of strategy cannot be taken as strong support for the hypotheses even when the preponderance of results are consistent with it. By themselves, they would merely fail to negate the

hypothesis. A stronger test would be provided if it were possible to use an otherwise appropriate sample for when 2-point or n-point LC measures were found to be highly correlated. However, the present analysis itself is somewhat more conclusive than, taken alone, the above strategy would seem to imply. Later we shall show that those identified at time t_2 as internals originated from backgrounds which were more educationally-oriented than those of the externals. Since it is already known that this is one of the antecedents of internality it would seem that the LC variable must be quite stable over long stretches of the life cycle. Additionally, our measure of LC was purged of certain items which could contribute to instability, as will be seen later.

While the evidence presented herein cannot be taken as conclusive, it tends on the whole to be consistent with the general hypothesis. At the very least the results would appear to justify further exploration of the role of locus of control in status attainment.

Three different attributes of locus of control delineated in the literature—mastery, efficient learning, and resistance to influence—were used to formulate hypotheses about the effects of this personality construct on status attainment processes.

Status outcomes in the early middle career. One of the more fundamental arguments of this paper is that the processes of status attainment will differ for internals and externals, so the main special hypotheses concern aspects of the differing ways in which status is attained by those of each of these two contrasting personality types. Note that this reasoning makes no assertions to the effect that the status attainment

levels of the two would differ. Lacking a rationale for expecting mean differences in attained status due to LC differences, we predict that there will be no significant differences between internals and externals regarding years of education completed, occupational status, and income.

Mastery. An increased sense of mastery over the environment and greater initiative are viewed as the main characteristics of internal locus of control. These may be expected to suppliment other resources In attainment processes. Socioeconomic background indicators like father's education, father's occupation and mother's education along with one's own past achievements should, for this reason, have smaller effects on the achievements of internals than on those of externals. Moreover, internals—being more responsive to their own internal cues than externals, and thus more innovative in setting and carrying on their life courses—should follow status attainment patterns which are not so easily summarized by standard models. Their status attainment patterns being less explicable (or more indeterminate), the explicable variance (R^2) in their attained status should be lower than that of externals.

Efficient Learning. Internal-external control expectancies were originally thought to affect primarily the learning process. Numerous studies have shown that the belief in the environment, being open to personal manipulation or internal control, results in more efficient learning than the belief in luck or chance. It may, therefore, be expected that the educational attainments (as indicated by grades [AP] and years of schooling completed) of the internals would be the more indicative of actual differences in learning, which in turn would be converted into

higher occupational prestige and income[1]. This characteristic, in contrast to that of mastery, is expected to increase the effects of internals' educational achievements on their subsequent attainments.

Resistance to Social Influence. The tendency of internals to be more independent in their opinions, to deviate from consensus and rely on their own judgement, may be expected to result in a greater independence of their status attainment processes as well. Friends' educational plans and parental educational encouragement were found in past studies to significantly affect educational attainments of young men (Alexander Eckland, and Griffin, 1975; Sewell and Hauser, 1976; and Otto and Haller, 1978). Since internals are known to be particularly resistant to covert influence, it is hypothesized that the effect of friends' plans will be smaller for internals than for externals. With regard to parental educational encouragements, which constitute an overt influence, no clearcut predictions can be made.

Aspirations. [redacted] Due to the internals' greater degree of self-reliance, educational aspirations should, therefore, have greater effects on subsequently achieved education of internals than on the education of externals. (The same hypothesis follows from the internals' efficient learning characteristic). Predictions regarding the effects of occupational aspirations are more complex. Since precision in planning the future may be considered a major attribute of internality, the effect of occupational planning of internals on education should find its expression in their educational aspirations. The direct effect of occupational asp'rations on education should, therefore, be smaller for internals than

for externals. The reverse should be true for occupational attainment.

Summary of the Special Hypotheses. A concise statement of the hypotheses follows.

1. Status outcomes: The mean educational, occupational and income statuses of internals and externals are not expected to differ significantly.
2. Intergenerational mobility: Parental socioeconomic status is expected to exert smaller effects on the attainments of internals than of externals.
3. Independence: Friends' educational plans are expected to have smaller effects on the attainments of internals than of externals.
4. Enactment of aspirations: Educational aspirations are expected to have greater effects on the subsequent statuses of internals than of externals; the effects of occupational aspirations on educational status are expected to be greater for externals, while their effects on occupational and income are expected to be greater for internals.
5. Learning efficiency: Past academic performance (AP:grades) and past educational attainment should have a greater effect on the attainment of subsequent statuses among internals than among externals.
6. Intragenerational (in-career) mobility: First job should have a smaller effect on the occupational attainment of internals than of externals.

7. Overall predictability (indeterminancy): The explained variance of status attainment models should be smaller for internals than for externals.

A schematic representation of the hypothesized differences in the attainment patterns of internals and externals due to the locus control construct is given in Table 1.

(Table 1 about here)

Method, Sample and Variables

The above hypotheses predict the existence of interactive effects between locus of control and other status attainment variables. Of the techniques available for the study of interactive effects—analysis of variance, multiplicative variables, and moderator variables—the last is considered to be the most appropriate for the present study. It involves the division of the sample into homogenous groups of subjects according to their scores on the moderator variable and drawing comparisons between them. Alker (1972) views the moderator variable strategy as "a new paradigm of personality research" that should produce great advances in the study of human behavior. Bem (1972) also approves of this strategy, while asserting that even researchers unfamiliar with the term have been using moderator variable analysis all along.

In the present study the sample is divided into internals and externals, and separate status attainment models are estimated for each. Significant differences between corresponding beta coefficients are taken to indicate interaction effects.

The Sample: In the spring of 1957 data were gathered from 442 seventeen year old male students enrolled in Lenawee County, Michigan, high schools. A detailed description of the site and the sample can be found in Haller and Miller (1971) and in Haller et al. (1975, 1.3).

Although the county was primarily agricultural, it had a flourishing light industry and its stratification system is described as having a full range of social class levels. Respondents included in the sample were those born between July 1, 1939 and June 30, 1940. Most were juniors (253) and seniors (133), but some were in lower grades. About 12% of the cohort were not in school, having taken full time jobs, and were excluded from the sample.

The follow-up study of the same subjects, then 32 year old men, was conducted in the spring of 1972. Eighty two percent, or 352, of the original 430 1957 subjects were located. Of these, four were dropped because of missing data and eight were deceased, leaving a total of 340 who were reinterviewed in 1972 and included herein. Telephone interviews were conducted by the University of Wisconsin Survey Research Laboratory with 327 subjects, eliciting, among other items, educational, occupational and income data. Special self-administered questionnaires were filled out by the other 13. Another set of self-administered questionnaires was sent to each of the 340. It was designed to elicit certain social psychological information, including responses to Rotter's Internal-External locus of control scale. Data from 277 of the respondents who gave complete responses to Rotter's Scale are used in the present analysis.

The status attainment process of this cohort has been analyzed in detail by Otto and Haller (1978), where informal comparisons were made both

to parameters estimated in other investigations. The results of the Otto-Haller analysis correspond quite well to those of other comparable research.

The Variables. Rotter's Internal-External Scale: Data for this variable were collected in 1972. Of the 23 items in Rotter's scale, 14 items are available in the present study. The items are assigned 1 for the internal alternative, 0 for the external. A factor analysis of this scale yielded two factors, both of which correspond to those found in other factorial analyses of Rotter's scale (Mirels, 1976; Abramowitz, 1973). The first factor describes the control personality construct, belief in feasibility of personal control over one's life events. A standard factor weighted index of its is employed herein to separate the internals and externals from each other. The other factor could be called "perceived political efficacy". The use of the first, uncontaminated by the second, is clearly advantageous for present purposes. In general, it is a more valid indicator of the basic personality variable. In particular, dropping the political efficacy factor purges the resulting scale of the relatively unstable items which reflect changes in the political structure, leaving the more stable items describing enduring aspects of personality.

Father's occupation is coded into Duncan (1961) SEI scores. Father's education and mother's education are scored 0 for less than eight grades of formal education completed, 1 for 8 grades, 2 for 9 to 11 grades, 3 for 12 grades, 4 for some college, and 5 for a college degree. Mental ability is assessed with the Cattell IPAT Test (Cattell and Cattell, 1950). Academic performance is measured by high school grade point average on a 4 point scale retrieved from high school records. Parental educational encouragement ranges from 0, for both parents' directive for the respondent

to quit school, to 8, both parents strongly encouraged the respondent to continue his schooling. Friends' educational plans is the number of years of college planned by the respondents' best friends (i.e. classmates) who appeared in the sample. Educational aspiration is scored 0 if the respondent did not plan on education beyond high school, 1 for 2 years, 2 for 3 to 4 years, 3 for 5 to 6 years, 4 for seven or more years of higher education. Occupational aspiration is assessed with Occupational Aspiration Scale (Haller and Miller, 1971). Current socioeconomic statuses of the respondents include level of education, occupational status and income. Education indicates the number of years of formal schooling completed. Occupation is coded into Duncan (1961) SEI scores. Income refers to respondents' reported annual earnings in 1971, the year preceding the survey. Following standard usage, the last three variables, in sequence, are considered to be the dependent variables in the status attainment process.

Status Attainment Models for Internals and Externals: Locus of Control as Moderator Variable.

The sample was dichotomized at the median by scores on the personal locus of control scale resulting in the formation of two subsamples. Internals (N=149) score 5-6 on this scale and externals (N=128) score 0 to 4. Corresponding means of the status attainment (SA) variables of the two subsamples were not expected to be different from one another; our rationale predicts only interactive effects of LC with SA antecedent variables on subsequent variables.

Zero-order associations. A test of the difference between the means[2] of the two sub-samples is presented in Table 2. Except as noted immediately below, none were found to differ significantly. This finding of no difference between internals and externals applies to the dependent status variables of education, occupation, and income, thus conforming to our expectations.

(Table 2 about here)

Somewhat surprisingly, three antecedent education variables are found to have significantly higher means in the group of internals: father's education, mother's education, and parental educational encouragement. This would seem to indicate that parents who are more positively oriented to education tend to encourage internality in their offspring. Although we did not initially expect any significant zero-order LC differences in the SA variables, this finding does not seem inconsistent with the basic argument. Indeed, it appears to make the present test of the LC-SA interaction hypothesis more nearly conclusive than anticipated. It corroborates the "direct teaching hypothesis", which holds that control perceptions are directly transferred from parents to children, rather than being learned from actual experiences and actual ability to exert control over one's life. This was tested earlier by Wright and Wright (1975). Unless we assume that the control perceptions of this sample were established in early childhood, it is difficult to explain the fact that LC is related to one's parents but not to one's own education. Thus the time t_2 LC measure seems to have tapped a rather stable variable. The greater the stability of LC, the stronger and more definitive the present test of the LC-SA interaction

hypothesis would appear to be.

The zero-order correlation coefficients for both subsamples are presented in Table 3.

(Table 3 about here)

Interactive effects. In order to test for the existence of the hypothesized interaction effects, status attainment models were estimated separately for internals and externals. Standardized regression coefficients, with their standard errors, for the attainment models for internals and externals are presented in Table 4.

(Table 4 about here)

Test for differences in status attainment patterns for internals and externals were performed by comparing the corresponding standardized regression coefficients in the models for internals and externals.[3]

Before examining the evidence, however, it is important to remember that the above hypotheses are conditional in nature. It is a well established fact that only a few of the direct effects of predictor variables in status attainment models are statistically significant. Locus of control theory has no definite predictions about the efficiency of predictor variables in status attainment models. It provides guidelines only regarding the relative size of effects among internals and externals resulting from control expectancies held by them. The hypotheses presented above should, therefore, be examined mainly for the significance of differences between internals and externals, not for the efficiency of predictor variables. Since sample size has a decisive effect on statistical significance, and these are not large subsample

it was considered advisable not to limit the hypotheses to effects which are statistically significant, although the most credible conclusions are limited to these alone. The comparisons of status attainment models of internals and externals, which provide evidence about the interactive effects of locus of control, are shown in Table 4. A summary of test results regarding the effect of control expectancies on attainment patterns, along with the hypotheses, appears in Table 5.

(Table 5 about here)

Intergenerational Mobility. All of the LC-SA hypotheses regarding intergenerational mobility must be rejected. Of nine possible interactions, eight pairs of regression coefficients do not differ significantly and the only one difference between coefficients which is statistically significant, is contrary to the initial hypothesis. [redacted] Mother's education is found to significantly increase the income of internals, while it has a nonsignificant effect on the income of externals. This effect is hard to interpret since the model controls for both the educational and occupational attainment of the respondents. (In spite of the fact that the mechanism involved in this effect is not known, it is interesting to learn that the large positive effect of mother's education on income, the only one to reach statistical significance in the income attainment model for the total Lenawee County sample [Otto and Haller, 1978], originates in the subsample of internals.)

Father's education has a significant effect on son's education in the models for externals but not internals. But the difference between the coefficients, however, is not significant. The special hypothesis that the intergenerational mobility of internals is greater than that of externals must be rejected.

Resistance to social influence. Friends' educational plans were hypothesized to have a greater impact on the attainment of externals than on that of internals. The latter were expected to exhibit greater independence of character and less conformist behavior. The data do not permit a rejection of the hypothesis as it applies to occupational and income; here the betas for externals are significantly larger than those for internals, as predicted. Further, although the difference between the coefficients of internals and externals in the model of educational attainment is not large enough to be statistically significant, it too is in the right direction. The special hypothesis of a greater effect of friends' plans on the attainment of externals is taken to be confirmed.

Enactment of aspirations. It was expected that aspirations would prove more accurate predictors of attainment for internals than for externals and that aspirations would affect the achievements of internals to a greater degree. The hypothesis is confirmed with regard to educational aspirations, which have a significantly greater impact on the educational and occupational attainments of internals than of externals. Occupational aspirations were expected to affect both the occupational and income attainment of internals more than those of externals. This was not confirmed. On the contrary, occupational

aspirations appear as a significant factor in the status attainment of externals, affecting their education, occupation and income, while the effect is not significant for any of the attainments of internals. With two hypotheses confirmed and four rejected, a clear conclusion regarding the aspirations hypothesis cannot be drawn; the results are ambiguous at best.

Education efficiency. The expectation that educational resources attained would be more efficiently converted into subsequent achievements is upheld with regard to occupational attainment. Both high school grades (AP) and total years of schooling contribute significantly more to the occupational attainment of internals than of externals. However, the direct effects of grades on income and educational attainments do not differ significantly between the two LC classes. Neither do the direct effects of education on income differ. The results of the tests of educational efficiency hypothesis are thus also ambiguous.

Intragenerational (in-career) mobility. The largest standardized regression coefficient in all the models presented in Table 4 is .720, the effect of first job on the occupational status of externals. For

every standard deviation of increase in externals' first job, there exists an increase of .72 standard deviations in current occupational status. The comparable figure for internals is only .352. The larger effect of first job for externals indicates that their occupational status differences have undergone less change since the beginning of their working career than that of internals. Internals, that is, depend less on their first job than do externals. This is indicative of less determinacy and more freedom in the occupational attainment of internals, just as the mastery trait of internals would predict. A similar trend is evident in the comparison of the total explained variance in attainment models of internals and externals to be discussed below. The evidence for accepting the hypothesis of smaller effects of earlier past on current occupational attainment among internals indicating a higher rate of intragenerational mobility, is strongly confirmed, but regarding income the evidence favors rejecting the hypothesis.

Predictability (R^2): Mastery was expected to find another expression in a lower degree of predictability (R^2) for internals. An examination of the coefficients of determination shows that in each model these coefficients are smaller for internals than for externals. The differences are especially pronounced in the income model. Despite the significantly larger effect of mother's education among internals, explained variance of income is twice as large for externals as for internals (29.1 versus 14.5 percent). The models for education show a difference of 11 percent between total explained variance for internals (56.5%) and externals (67.5%). The explained variance of occupational

status is also smaller for internals (61.0%) than for externals (68.2%). Since the coefficient of determination (R^2) provides an overall measure of the relationship between the set of predictor variables and the dependent variable, the self-evident conclusion to be derived from the larger R^2 in the models of externals is that the models provide a better fit to the process of attainment for externals than for internals. This lesser explicability of internals' attainment processes is exactly what the mastery hypothesis predicts. Differences in explained variance of status attainment models are all in the right direction. The results are tentative, however, since it would appear that no valid test exists for the comparison of coefficients of determination we have calculated here.[4]

Summary of the evidence. 1) Regarding status outcomes, it was predicted and found that the means of internals and externals are not statistically different from each other. This applies to the comparisons made for each of the three status variables measured at age 32. 2) Regarding intergenerational mobility all nine tests resulted in rejections: the data do not support the hypothesis that parental status would have greater effects on the eventual (age 32) education, occupational status and income of externals than of internals. 3) Regarding susceptibility to peers' examples, there are two confirmations and one rejection: the effect of peers' educational plans are indeed significantly greater among externals than internals for occupational status and income, but not for educational attainment. 4) Conforming to the hypothesis, the predicted effects of educational and occupational aspiration on educational attainment were found and they were statistically significant. The remaining four pre-

dictions, pertaining to occupational attainment and income were rejected. The hypothesis that learning differences would be more readily converted to status differences was borne out as regards the effects of grades (AP) and educational attainment on occupational attainment. It was rejected as regards grades on educational and income, and of education on income. 6) The prediction that internals' current occupational status would be less strongly affected by first job status than would that of externals was borne out. 7) The expectation that the status attainment processes of internals would be less predictable, as seen by the application of a standard status attainment model, is borne out by the data on the overall coefficients of determination (R^2) for each status outcome variable.

A straight, mechanical counting of acceptances and rejections (Table 5) would show the rejections to be more numerous and might lead one prematurely to dismiss the LC-SA interaction hypotheses. We believe, however, that given the present state of knowledge this would be inappropriate. 1) In our judgment the weightiest evidence concerns the overall predictibility (R^2 values), and the differential effects of first job on occupational status. Here the data conform to the hypothesis. 2) Moreover, a close examination of the directions and sizes of the differences in 25 beta coefficients pertaining to the hypothesis shows that 12 are in the right direction and are large enough, we judge, to be replicable in later research. (In the evidence we now summarize, stared items indicate that $P \leq .05$; negatives are totally unexpected and are treated as if they were zero). These follow. (Education: X_2, X_7, X_8*, X_9*; occupation: X_5*, X_7*, X_{10}*, X_{11}*; income: X_1, X_2, X_7*, X_{10}). Five are in the wrong direction and are rejections which seem

large enough to be replicated in future research—education: X_5; occupation: X_9; income: X_3*, X_5, X_{11}. Eight are too small to make much of—education: X_1, X_3; occupation: X_1, X_2, X_3, X_8; income: X_8. X_9. In our considered opinion these findings—which are still mixed, though less so after applying less stringent criteria—argue for a tentative acceptance of the overall hypotheses. The state of the art of deducing specific interactive social psychological hypotheses remains poorly developed. Assuming this to be true in our judgment the present display of successes vs. failures in deducing empirically supportable hypotheses augurs well for the basic line of thinking invoked in the LC-SA interaction hypothesis. 3) The last point is related to the foregoing. Note that hypotheses predicting zero-order differences between internals and externals were not drawn at all; on the contrary, lacking any rationale by which to deduce the existence of zero-order LC differences in attained states, we hypothesized and observed a set of non-significant differences. An hypothesis which successfully predicts no zero-order effects together with many interactive effects involving variables which often have already-known, complex linear partialled relationships with each other would seem to be too promising to be dismissed without further checking.

Substantively, it is concluded that only one predicted pattern of attainment had to be completely rejected, i.e., the hypothesis that the intergenerational mobility of internals would exceed that of externals. The predicted pattern of the greater independence of internals is to be seen in, the lesser influence which their friends' plans have on their occupation and income. The stronger effect of internals' educational aspirations on education

attainments conform to the predictions, as do the weaker effects of their occupational aspirations on the same variable. There is, however, no support for the remaining predictions concerning the two aspiration variables on the one hand and occupation and income on the other. The educational efficiency hypothesis is partly corroborated by the larger effects of education and of academic performance in the attainments internals' occupational attainment.

Discussion. The conjecture that internals exhibit a higher level of mastery, and more variability in the processes by which they attain status, and are less constrained by the social structure tends on the whole to be borne out by the bulk of the evidence.

Education plays a prominent role in the attainment pattern of internals. Educational aspirations, academic performance in high school, and total educational attainment would appear to be more effective means of advancement for them than for externals.

The educational and occupational attainments of externals, on the other hand, would appear to depend more on occupational aspirations and on first job. Occupational aspirations effectively increase the educational as well as the occupational attainment of externals. First job is by far the most effective means of occupational attainment among externals, while for internals it is not much larger than the effect of

education and high school grades.

The above effects of locus of control cannot be detected when accepted linear additive models of status attainment are employed in the investigation. Only when achievement is analyzed interactively, using locus of control as a moderator variable, do the effects which control perceptions exert on the process of attainment show themselves.

Objections to the Present Research

The contemporaneity in the measurement of locus of control and attained status might make causal inferences suspect. A critic might want to reverse the causal argument, claiming that the interaction effects shown in the present analysis cause differences in control perceptions rather than vice versa. It could be argued that greater intragenerational mobility and higher effects of education related variables would result in perceptions of internal control. However, to be convincing, these would have to be accompanied by higher attainments. As was indicated above, the mean attainments of internals and externals are not significantly different. Moreover, the probability that a configuration of greater effects of education, greater mobility and increased independence from influence of peers, which locus of control theory draws together as specific characteristics of this construct, would appear by chance and in direct opposition to the above theory, is small indeed. Thus, upon examination this exception seems difficult to sustain. But we, too, believe the hypothesis should be retested with longitudinal data which include LC measures taken in the initial data wave.

Again, it may be argued that the findings apply only to men from one small place. Although the Lenawee County sample was found to be comparable to large state and national samples (Otto and Haller, 1978), a critic might argue that some aspects of this sample, e.g. its small town and rural character, limit the applicability. This objection is less convincing even than the first. If these were merely empirical findings haphazardly inferred from an available data set, the criticism would be very serious indeed. But this is not what was done. The main line of the argument was worked out in advance and is based upon prior knowledge of the behavior patterns of internals and externals. The data were used to test the line of reasoning, not to draw post hoc empirical generalizations. Even so, it is important that the others use different data sets to provide corresponding tests.

The third objection would hold that because of mixed results, the results of this test are at best inconclusive and at worst that they disconfirm the hypothesis. The counter-arguments have already been presented and need not be repeated.

A fourth objection might hold that even if the LC-SA interaction hypothesis is tenable the LC variable cannot improve much on what is already known about status attainment processes. But it cannot be denied that the same status attainment model was found here to be more effective for externals than for internals, and that this holds for educational, occupational and income statuses, especially the latter. In our judgment this provides a substantial gain in our understanding of status attainment.

Conclusions

Assuming that the main LC-SA interaction hypothesis is tenable, there are two major conclusions to be drawn. One pertains to the status attainment arena and the other to the broader area of personality

and social structure. First, there seems to be a widespread belief that status attainment research has reached a dead end, that there is nothing left to be learned. Subsumed in that belief is the notion that apart from intelligence, aspirations, and significant others' expectations, personality in particular and social psychology in general has nothing to offer in the search for explanations of status differences. The variations in status attainment patterns and overall predictability of attainments observed here between internals and externals would seem counter to these contentions. 1) The LC-SA interaction hypothesis appears to increase rather substantially our understanding of status attainment. We are more inclined to think that status attainment researchers need to seek new ideas than to believe that the development of the theory of status attainment has reached an intrinsically determined stopping point. 2) It also appears now that prior research had not exhausted the possibilities for incorporating new personality variables in explanations of status attainmemt. If our conclusions are tenable, at least one new personality variable has a place in such explanations, but in a previously unsuspected and untried interactive mode. By the same token, it would seem premature to dismiss the possibility of new social psychological contributions to status attainment theory.

Second, the theory invoked herein may be considered to be a part of the larger area of personality and social structure. Here it would appear that an interactive relationship between a key personality variable and other factors, some (academic performance and status aspirations) taking

their form from social structural variables, have functioned together to allocate persons to different levels of three social structural variables: education, occupational status, and economic status. It seems reasonable to suppose that efforts to apply other personality variables in analogous ways to analyze social allocation questions (such as sex-role assumption, social maturation, etc.) might meet with corresponding success. Yet this must be done with caution. The approach may not be applied indiscriminately to all psychological constructs. Neither can it serve as an all-embracing autonomous hypothesis. Lewin's concept of the psychological situation may serve as a useful guideline, but one must go further. At least for the present, only a clear specification of the relations between particular psychological, situational, and outcome variables can be expected to yield fruitful interactive hypotheses.

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FOOTNOTES

[1] In the present study, as is usual in the status attainment literature, income is treated as merely an extension of the models for education and occupation. Consequently, hypotheses advanced with regard to income are proposed here with less confidence than those for educational and occupational attainments.

[2] A one-tailed t statistic is employed to test for significance of differences between means, with (N_1+N_2-2) degrees of freedom. (Hays and Winkler, 1970:348)

$$t = \frac{M_1 - M_2}{\sqrt{\left(\frac{N_1 S_1^2 + N_2 S_2^2}{N_1 + N_2 - 2}\right)\left(\frac{N_1 + N_2}{N_1 N_2}\right)}}$$

[3] A one-tailed test statistic for differences between standardized regression coefficients was used:

$$\frac{\beta_1 - \beta_2}{\sqrt{S_2^2 + S_2^2}}$$

(Otto, 1974:65)

[4] Personal communication from the first author of Draper and Smith (1966).

Table 1

Hypothesized Status Attainment Patterns of Internals and Externals

Attainment Pattern	Independent Variables[a]	Dependent Variables: Education	Occupation	Income
Status Outcomes	-------	INT=EXT	INT=EXT	INT=EXT
Intergenerational Mobility	X_1 FOCC	INT<EXT	INT<EXT	INT<EXT
	X_2 FED	INT<EXT	INT<EXT	INT<EXT
	X_3 MED	INT<EXT	INT<EXT	INT<EXT
Independence	X_7 FEDP	INT<EXT	INT<EXT	INT<EXT
Aspirations	X_8 EDASP	INT>EXT	INT>EXT	INT>EXT
	X_9 OCASP	INT<EXT	INT>EXT	INT>EXT
Educational Efficiency	X_5 AP	INT>EXT	INT>EXT	INT>EXT
	X_{10} EDUC		INT>EXT	INT>EXT
Intragenerational Mobility	X_{11} FJOB		INT>EXT	INT<EXT
Predictability (R^2)		INT<EXT	INT<EXT	INT<EXT

INT - Internals

EXT - Externals

[a] X_1-father's occupation; X_2-father's education; X_3-mother's education; X_5-academic performance; X_7-friends' educational plans; X_8-educational aspirations; X_9-occupational aspirations; X_{10}-education; X_{11}-first job.

Table 2

Means, Variances, and Test for Differences Between Means of Personality and Social Structural Variables in Internals[a] and Externals[b] as Defined by the Personal Locus of Control Scale

Variables	Internals		Externals		Signif. of Diff.
	Mean	Variance	Mean	Variance	
X_1 FOCC	35.45	484.42	31.89	509.75	n.s.
X_2 FED	2.44	1.97	2.13	1.70	.05
X_3 MED	2.71	1.78	2.43	1.64	.05
X_4 MA	21.02	27.35	20.99	25.95	n.s.
X_5 AP	2.11	.72	2.11	.603	n.s.
X_6 PEDE	6.64	2.34	6.30	3.22	.05
X_7 FEDP	2.77	3.90	2.33	3.49	n.s.
X_8 EDASP	1.22	1.53	1.13	1.53	n.s.
X_9 OCASP	38.03	160.56	36.48	156.16	n.s.
X_{10} EDUC	13.67	7.36	13.40	5.12	n.s.
X_{11} FJOB	41.58	690.51	39.13	687.73	n.s.
X_{12} OCC	49.21	650.46	45.15	612.46	n.s.
X_{13} INC	12736.	.19988+08	12498.	.30974+08	n.s.

[a]Internals score 5-6 on the personal locus of control scale, N=149.

[b]Externals score 0-4 on the personal locus of control scale, N=128.

[c]X_1-father's occupation; X_2-father's education; X_3-mother's education; X_4-mental ability; X_5-academic performance; X_6-parental educational encouragement; X_7-friends' educational plans; X_8-educational aspirations; X_9-occupational aspirations; X_{10}-education; X_{11}-first job; X_{12}-occupation; X_{13}-income;

Table 3

Correlation Coefficients[a] for Variables in the Status Attainment Model and Achievement Orientations in the Subsamples of Internals[b] (below the diagonal) and Externals[c] (above the diagonal) on the Personal Locus of Control Scale

Variables[d]		X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}	X_{11}	X_{12}	X_{13}	X_{14}
X_1	FOCC	-	474	350	193	190	281	087	258	313	292	335	295	278	025
X_2	FED	453	-	510	270	252	249	128	284	337	396	381	295	336	245
X_3	MED	236	572	-	251	338	297	154	303	260	289	212	182	230	272
X_4	MA	254	198	271	-	423	393	252	412	428	429	429	387	266	254
X_5	AP	212	219	258	538	-	446	335	585	517	648	619	481	340	471
X_6	PEDE	175	324	268	195	229	-	307	557	469	494	473	370	300	323
X_7	FEDP	171	160	275	419	460	364	-	380	373	467	394	437	342	322
X_8	EDASP	339	388	384	420	577	441	514	-	659	690	600	487	301	373
X_9	OCASP	255	379	380	461	575	482	463	742	-	692	592	606	232	288
X_{10}	EDUC	251	327	349	412	595	255	462	701	592	-	737	614	374	375
X_{11}	FJOB	289	240	186	397	543	327	491	560	521	691	-	792	395	403
X_{12}	OCC	270	216	229	348	596	285	398	591	546	688	694	-	384	309
X_{13}	INC	109	166	290	220	170	031	097	200	148	268	201	188	-	220
X_{14}	ACH	-029	210	229	276	414	192	441	371	435	284	242	313	213	-

[a] Decimals are omitted.

[b] Internals score 5-6 on the personal locus of control scale. N=149

[c] Externals score 0-4 on the personal locus of control scale. N=128

[d] X_1-father's occupation; X_2-father's education; X_3-mother's education; X_4-mental ability; X_5-academic performance; X_6-parental educational encouragement; X_7-friends' educational plans; X_8-educational aspirations; X_9-occupational aspirations; X_{10}-education; X_{10}-education; X_{11}-first job; X_{12}-occupation; X_{13}-income; X_{14}-achievement orientations.

Table 4

Standardized Regression Coefficients, Standard Errors (in parentheses)[a] and Coefficients of Determination for Socioeconomic Attainment Models of Internals and Externals on the Personal Locus of Control Scale[b]

Independent Variables[c]		Dependent Variables: Education		Occupation		Income	
		Internals	Externals	Internals	Externals	Internals	Externals
X_1	FOCC	-017 (065)	015 (062)	070 (063)	032 (062)	-005 (094)	112 (094)
X_2	FED	064 (077)	166* (067)	-090 (074)	-048 (069)	-025 (110)	192 (104)
X_3	MED	048 (071)	-075 (064)	018 (069)	020 (066)	X 262* (103)	-017 (099)
X_4	MA	017 (070)	017 (062)	-074 (067)	035 (062)	144 (100)	051 (093)
X_5	AP	233* (077)	275* (070)	X 213* (077)	-053 (077)	-034 (117)	128 (115)
X_6	PEDE	-108 (067)	034 (067)	028 (065)	-054 (067)	-065 (097)	086 (101)
X_7	FEDP	092 (070)	158* (058)	X-055 (069)	139* (060)	X-096 (102)	194* (092)
X_8	EDASP	X 466* (093)	234* (080)	068 (096)	-088 (083)	051 (143)	030 (125)
X_9	OCASP	X 076 (092)	271* (075)	082 (088)	259* (079)	-098 (132)	-245* (124)
X_{10}	EDUC			X 276* (091)	-051 (078)	156 (140)	066 (147)
X_{11}	FJOB			X 352* (081)	720* (086)	097 (128)	-012 (163)
X_{12}	OCC					011 (127)	203 (139)
	R^2	.565	.675	.610	.682	.145	.291

*Absolute value of regression coefficient equals at least twice its standard error and it is defined as significant.

XThe difference between the coefficients of internals and externals is significant at the .05 level or beyond, indicating the existence of a significant interaction effect.

[a]Decimals are omitted.

[b]Internals score 5-6 on the personal locus of control scale, N=149.
Externals score 0-4 on the personal locus of control scale, N=128.

[c]X_1-father's occupation; X_2-father's education; X_3-mother's education; X_4-mental ability; X_5-academic performance; X_6-parental educational encouragement; X_7-friends' educational plans; X_8-educational aspirations; X_9-occupational aspirations; X_{10}-education; X_{11}-first job; X_{12}-occupation.

TABLE 5

Hypothesized Status Attainment Patterns of Internals and Externals and Summary of Existing Evidence

Attainment Patterns	Independent Variables[a]		Dependent Variables					
			Education		Occupation		Income	
			Hypothesis	Evidence	Hypothesis	Evidence	Hypothesis	Evidence
Status Outcomes	--		INT=EXT	confirmed	INT=EXT	confirmed	INT=EXT	confirmed
Intergenerational Mobility	X_1	FOCC	INT<EXT	rejected	INT<EXT	rejected	INT<EXT	rejected[b]
	X_2	FED	INT<EXT	rejected[b]	INT<EXT	rejected	INT<EXT	rejected[b]
	X_3	MED	INT<EXT	rejected	INT<EXT	rejected	INT<EXT	rejected
Independence	X_7	FEDP	INT<EXT	rejected[b]	INT<EXT	confirmed	INT<EXT	confirmed
Enactment of Aspirations	X_8	EDASP	INT>EXT	confirmed	INT>EXT	rejected	INT>EXT	rejected
	X_9	OCASP	INT<EXT	confirmed	INT>EXT	rejected	INT>EXT	rejected
Learning Efficiency	X_5	AP	INT>EXT	rejected	INT>EXT	confirmed	INT>EXT	rejected
	X_{10}	EDUC	--	--	INT>EXT	confirmed	INT>EXT	rejected[b]
Intragenerational Mobility	X_{11}	FJOB	--	--	INT<EXT	confirmed	INT<EXT	rejected
Predicability (R^2)	--		INT<EXT	confirmed	INT<EXT	confirmed	INT<EXT	confirmed

[a] X_1-father's occupation; X_2-father's education; X_3-mother's education; X_5-academic performance; X_7-friends' educational plans; X_8-educational aspirations; X_9-occupational aspirations; X_{10}-education; X_{11}-first job.

[b] Though they are not acceptable by the usual strict criteria, these differences may really indicate confirmations instead of rejections in that they are in the right direction and appear to be large enough to be found to be replicable in future research.